WHAT IS CLAIMED IS:

1. In a system including a local station and a remote station, the local station including a receiver capable of operating in an unlocked state when not tracking an uplink signal, the unlocked state corresponding to a best lock frequency (BLF) of the receiver, a method of remotely monitoring the BLF, comprising:

(a) in the local station, operating the receiver in the unlocked state corresponding to the BLF; concurrently

(b) in the local station, deriving data indicative of a ratio of the BLF to a reference frequency of the receiver;

(c) telemetering the data indicative of the ratio from the local station to the remote station; and

(d) in the remote station, estimating the BLF based on (i) the telemetered data indicative of the ratio, and (ii) a predetermined estimate of the reference frequency, to produce an estimated BLF.

2. The method of claim 1, further comprising:

(e) transmitting, from the remote station to the local station, an uplink signal having an uplink frequency that will be received at the local station at the estimated BLF; and

(f) in the local station, locking the receiver to the uplink frequency.

3. The method of claim 2, wherein the uplink frequency transmitted in step (e) is either:

(i) the estimated BLF, or

(ii) offset from the estimated BLF by an amount substantially equal to a Doppler shift arising from relative motion between the remote station and the local station.

4. The method of claim 1, wherein step (a) includes operating the receiver in the absence of an uplink signal.

5. The method of claim 1, wherein the BLF is the uplink frequency that, if received at the receiver, would cause the receiver to transition from the unlocked state to a locked state in a minimum amount of time.

6. The method of claim 1, wherein step (b) comprises:

producing a first linear combination frequency as a first linear combination of the BLF and the reference frequency;

producing a second linear combination frequency as a second linear combination of the BLF and the reference frequency;

repeatedly counting cycles of the first linear combination frequency to produce successive first count values; and

repeatedly counting cycles of the second linear combination frequency to produce successive second count values corresponding to the successive first count values, wherein the successive first and second count values represent the data indicative of the ratio.

7. The method of claim 6, wherein:

step (c) comprises telemetering the successive first and second count values from the local station to the ground station; and

step (d) comprises estimating the BLF based on (i) the telemetered successive first and second count values, and (ii) the predetermined estimate of the reference frequency, to produce the estimated uplink frequency.

8. The method of claim 7, wherein step (e) comprises:

subtracting the telemetered successive first count values from each other to produce a first difference value;

subtracting the telemetered successive second count values from each other to produce a second difference value corresponding to the first difference value; and

estimating the BLF based on the first and second difference values and the predetermined reference frequency estimate.

9. The method of claim 8, wherein:

the first linear combination frequency is equal to $A \bullet f_u + B \bullet f_o$;

the second linear combination frequency is equal to $C \bullet f_u + D \bullet f_o$; and

said estimated BLF ($\tilde{f_u}$) is given by $\tilde{f_u} = \tilde{f_o}\,(B\text{-}Dr)/(Cr\text{-}A)$,

where

f_u, f_o, and $\tilde{f_o}$ respectively denote the BLF, the reference frequency and the predetermined reference frequency, and

r represents a ratio of the first difference value ($\Delta N1$) to the second difference value ($\Delta N2$).

10. The method of claim 1, wherein the local station is a spacecraft and the remote station is a ground station.

11. In a system including a local station and a remote station, the local station including a receiver, a method of remotely monitoring an uplink frequency of an uplink signal at the local station, comprising:

(a) in the local station, operating the receiver in the locked state when tracking the uplink frequency; concurrently

(b) in the local station, deriving data indicative of a ratio of the uplink frequency and a reference frequency of the receiver;

(c) telemetering the data indicative of the ratio from the local station to the remote station; and

(e) in the remote station, estimating the uplink frequency based on the telemetered data and a predetermined estimate of the reference frequency, to produce an estimated uplink frequency.

12. The method of claim 11, wherein step (b) comprises:

producing a first linear combination frequency as a first linear combination of the uplink frequency and the reference frequency;

producing a second linear combination frequency as a second linear combination of the uplink frequency and the reference frequency;

repeatedly counting cycles of the first linear combination frequency to produce successive first count values; and

repeatedly counting cycles of the second linear combination frequency to produce successive second count values corresponding to the successive first count values, wherein the successive first and second count values represent the data indicative of the ratio.

13. The method of claim 12, wherein:

step (c) comprises telemetering the successive first and second count values from the local station to the ground station; and

step (d) comprises estimating the uplink frequency based on (i) the telemetered successive first and second count values, and (ii) the predetermined estimate of the reference frequency, to produce the estimated uplink frequency.

14. The method of claim 13, wherein step (e) comprises:

subtracting the telemetered successive first count values from each other to produce a first difference value;

subtracting the telemetered successive second count values from each other to produce a second difference value corresponding to the first difference value; and

estimating the uplink frequency based on the first and second difference values and the predetermined reference frequency estimate.

15. The method of claim 14, wherein:

the first linear combination frequency is equal to $A \cdot f_u + B \cdot f_o$;

the second linear combination frequency is equal to $C \cdot f_u + D \cdot f_o$; and

said estimated uplink frequency ($\tilde{f_u}$) is given by $\tilde{f_u} = \tilde{f_o}\,(B\text{-}Dr)/(Cr\text{-}A)$,

where

f_u, f_o, and $\tilde{f_o}$ respectively denote the uplink frequency, the reference frequency and the predetermined reference frequency, and

r represents a ratio of the first difference value ($\Delta N1$) to the second difference value ($\Delta N2$).

16. The method of claim 1, wherein the local station is a spacecraft and the remote station is a ground station.